

Amendments to the Claims

This listing of claims will replace all versions, and listings of claims in the application:

Claim 9 has been amended.

Claims 11 to 20 have been added.

Listing of the Claims

Claim 6 (previously presented): A method for production of a semi-finished product made of zirconium alloy containing by weight at least 97% zirconium, intended for the production of flat products, comprising:

producing an ingot with a diameter between 400 mm and 800 mm and a length between 2 m and 3 m by casting the zirconium alloy;

forging the ingot of the semi-finished product in the form of a slab with a thickness of approximately 100 mm and intended to be hot rolled then cold rolled to obtain a flat product of a thickness between 0.2 mm and 4 mm, wherein the slab is produced from the ingot by a single forging operation at a temperature at which the zirconium alloy is in a state comprising the crystalline α and β phases of the zirconium alloy.

Claim 7 (previously presented): The method according to claim 6, wherein at the forging temperature the ingot contains a volume proportion of zirconium alloy in the α phase between 10% and 90%, a remainder of the zirconium alloy of the ingot being in the β phase.

Claim 8 (previously presented): The method according to claim 6, wherein the forging of the zirconium alloy in the α and β phase is performed at a temperature between 850°C and 950°C.

Claim 9 (currently amended): The method according to claim 6, wherein the zirconium alloy contains at least at most 3% by weight in total of additive elements comprising at least one of the elements tin, iron, chromium, nickel, oxygen, niobium, vanadium and silicon, a remainder of the alloy being constituted by zirconium with an exception of inevitable impurities.

Claim 10 (previously presented): The method according to claim 6, wherein during production of the slab a flat product of a thickness between 0.2 mm and 4 mm is produced for a nuclear fuel assembly.

Claim 11 (new): A method for production of a semi-finished product made of zirconium alloy containing by weight at least 97% zirconium, intended for the production of flat products, comprising:

producing an ingot with a diameter between 400 mm and 800 mm and a length between 2 m and 3 m by casting the zirconium alloy;

selecting a temperature for forging in the α and β phase as a function of the composition of the zirconium alloy; and

forging the ingot of the semi-finished product in the form of a slab with a thickness of approximately 100 mm and intended to be hot rolled then cold rolled to obtain a flat product of a thickness between 0.2 mm and 4 mm, wherein the slab is produced from the ingot by a single forging operation at a temperature at which the zirconium alloy is in a state comprising the crystalline α and β phases of the zirconium alloy.

Claim 12 (new): A method for production of a semi-finished product made of zirconium alloy containing by weight at least 97% zirconium, intended for the production of flat products, comprising:

producing an ingot with a diameter between 400 mm and 800 mm and a length between 2 m and 3 m by casting the zirconium alloy;

forging the ingot of the semi-finished product in the form of a slab with a thickness of approximately 100 mm and intended to be hot rolled then cold rolled to obtain a flat product of a thickness between 0.2 mm and 4 mm, wherein the slab is produced from the ingot by a single forging operation at a temperature at which the zirconium alloy is in a state comprising the crystalline α and β phases of the zirconium alloy; and

ensuring that the forging does not occur when the zirconium alloy is solely in the β phase.

Claim 13 (new): The method according to claim 12, wherein ensuring that the temperature remains below 950°C.

Claim 14 (new): The method according to claim 12, wherein at the forging temperature the ingot contains a volume proportion of zirconium alloy in the α phase between 10% and 90%, a remainder of the zirconium alloy of the ingot being in the β phase.

Claim 15 (new): The method according to claim 12, wherein the zirconium alloy contains at most 3% by weight in total of additive elements comprising at least one of the elements tin, iron, chromium, nickel, oxygen, niobium, vanadium and silicon, a remainder of the alloy being constituted by zirconium with an exception of inevitable impurities.

Claim 16 (new): The method according to claim 12, wherein during production of the slab a flat product of a thickness between 0.2 mm and 4 mm is produced for a nuclear fuel assembly.

Claim 17 (new): The method according to claim 11, wherein at the forging temperature the ingot contains a volume proportion of zirconium alloy in the α phase between 10% and 90%, a remainder of the zirconium alloy of the ingot being in the β phase.

Claim 18 (new): The method according to claim 11, wherein the forging of the zirconium alloy in the α and β phase is performed at a temperature between 850°C and 950°C.

Claim 19 (new): The method according to claim 11, wherein the zirconium alloy contains at most 3% by weight in total of additive elements comprising at least one of the elements tin, iron, chromium, nickel, oxygen, niobium, vanadium and silicon, a remainder of the alloy being constituted by zirconium with an exception of inevitable impurities.

Claim 20 (new): The method according to claim 11, wherein during production of the slab a flat product of a thickness between 0.2 mm and 4 mm is produced for a nuclear fuel assembly.